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July 21, 2004

The Honorable Nils J. Diaz
Chairman
Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD, 20852

Dear Chairman Diaz:

I am writing regarding PG&E's recent announcement that segments of spent fuel rods are missing from PG&E's decommissioning Humboldt Bay nuclear power plant.

This is the third such event in just over 3 years. As you will recall, Daily Event Report #37596, December 15, 2000 indicated that two radioactive spent fuel rods were missing from the Millstone Nuclear Power Station Unit 1. I sent the Commission two letters regarding this subject (see http://www.house.gov/markey/Issues/iss_nuclear_ltr001220.pdf, http://www.house.gov/markey/Issues/iss_terrorism_ltr011204.pdf). After an extensive investigation that cost $9 million, the licensee concluded that the fuel rods in this matter were "somewhere" – perhaps in South Carolina, perhaps in Washington State, perhaps still in Connecticut. The Commission then concluded that even though it had no idea where the fuel rods were, they did not pose a public health risk to anyone. Despite that fact that the rods were never found, the Commission fined the plant operator only $288,000 for its lax nuclear materials accounting and oversight.

I then learned that a similar incident occurred at Entergy's Vermont Yankee power plant, and wrote you about that on April 22, 2004. (see http://www.house.gov/markey/Issues/iss_dirtybombs_ltr040422.pdf) In your June 24, 2004 response (see http://www.house.gov/markey/Issues/iss_dirtybombs_resp040624.pdf), you stated that:

- the Commission didn't know where the fuel rod segments were
- "if radioactive material typical of a fuel rod segment were used in a dirty bomb, the radioactive material could contaminate an area of a few city blocks or more, depending on the size of the explosive, the amount of radioactive material used, and weather conditions."
- the last time Vermont Yankee physically verified the whereabouts of the missing spent fuel pieces was January 1980, and

- In 1988, the NRC stopped inspecting storage of spent nuclear fuel in order to allocate its resources to matters it felt were more "risk-significant". It did not resume these inspections until after September 11, 2001.

I recently learned that the Vermont Yankee fuel rod segments were located in the spent fuel pool even though 2 robotic searches of the pool failed to find them.

According to the press release issued by PG&E on July 16, 2004, it believes that the spent fuel is not actually missing, despite the fact that it cannot be found at this time. Instead, PG&E blames the discrepancy on "conflicting documentation." Evidently documentation exists that indicates both that the spent fuel rod segments were shipped offsite for reprocessing in 1969 and that they are stored in the spent fuel pool onsite.

This report, coming shortly after the Vermont Yankee and Millstone incidents, raises additional questions about the nature and adequacy of nuclear reactor licensee spent fuel accounting, oversight, and security. If nuclear reactor operators are not maintaining strong controls over nuclear materials, and are unable to account for their location, how can the public be assured that these sensitive and potentially dangerous materials are not falling into the wrong hands? As you know, Al Qaeda is reportedly seeking radioactive materials with which to construct a dirty bomb or homemade nuclear weapon in North America, and the most recent elevation of the terror threat level to "Orange" was in part motivated by fears of a terrorist plot to detonate a dirty bomb in an American city. Over the past several years, I have written several letters to the Commission, the Department of Energy (DOE), the Department of Homeland Security and U.S. Customs (see http://www.house.gov/markey/dirtybombs.htm for such correspondence) regarding lax security associated with these materials. Because this is the third reported incident regarding spent fuel that cannot be located, I ask for your prompt assistance in responding to the following questions:

1) Please describe how it was discovered that the fuel rod segments were missing from the Humboldt spent fuel pool. When were these fuel rods last accounted for?

2) What is the Commission doing to ascertain the whereabouts of the fuel rod segments? Please describe all investigative actions taken or planned to be taken.

3) In light of the fact that The Humboldt Nuclear Power Plant is unable to account for the whereabouts of these fuel rod segments, do you believe that the licensee has complied with NRC requirements to establish, maintain and follow its material control and accounting procedures to ensure it can account for the special nuclear material in its possession? Why or why not?

4) In your February 1, 2001 letter, you said that it was unlikely that the two spent fuel rods were stolen from Millstone, because "The very high radiation level of the material makes theft difficult, dangerous, and very unlikely" and "amount and

chemical form of the fissile material contained in the two spent fuel rods make it unlikely, in our judgment, that the rods could be used to assist in the manufacture of a weapon." However, the September 11th terror attacks have demonstrated that terrorists may be willing to commit suicide in order to cause harm to America, and may be willing to devote many years to the planning and execution of such an attack. Moreover, the Humboldt nuclear reactor ceased operations in 1976, so the levels of radioactivity contained in the fuel rod segments that are missing may be different.

a) Have you evaluated the possibility that the Humboldt fuel rods may have been stolen or diverted?
b) Isn't it possible that rather than trying to use the fissile material from these weapons for a nuclear explosive device or weapon, terrorists might want to use it for a crude radiological weapon, or "dirty bomb" aimed at dispersing radioactive materials in a populated area?
c) What would be the worst-case public health, safety, and environmental consequences of detonation of a "dirty bomb" fabricated from the missing Humboldt fuel rod segments?

5) Please list all reactors (both operating and decommissioning) that a) have conducted a spent fuel inventory since September 11, 2001(as well as the date on which the inventory was conducted and whether any fuel rods or fuel rod segments were found to be missing) and b) plan to conduct such an inventory, as well as the date on which it is expected to occur.

6) Has Entergy been fined for its failure to properly store its spent fuel rods at the Vermont Yankee plant? What about PG&E for its failure to properly store or account for its spent fuel rods at the Humboldt plant? If not, why not?

7) Why did the two robotic searches of the spent fuel pool at Vermont Yankee fail to turn up the now-found spent fuel rod segments? Does this incident provide the Commission with information regarding the adequacy of such searches?

Thank you for your assistance and cooperation in responding to this request. Please provide your response no later than Friday August 20, 2004. Should you have any questions about this inquiry, please have your staff contact Dr. Michal I. Freedhoff of my staff at 202-225-2836.

Sincerely,

Edward J. Markey
Member of Congress